JANUARY
1955

THE Gleaner

NATIONAL AGRICULTURAL COLLEGE

Fountain House Hotel
1748

Ye Olde Inn

Main and State Streets
Doylestown, Pa.

Doylestown Hobby Shop

MODEL, CRAFT AND
ARTIST SUPPLIES

PHONE 5824
63 West State Street
Doylestown, Pa.

FOR FIELD REPRESENTATIVES
trained to serve you more

FOR SCHOOLS
to help you learn more

FOR PRODUCTS
to help you sell more

IT'S

AMBURGO

YES, LOOK TO AMBURGO
FOR A COMPLETE PROGRAM
FOR FEED MANUFACTURERS!

The AMBURGO Company, Inc.
1315-17 Walnut Street
Phila. 7, Penna.

HOward 8-7525 - 7526

QUAKER MAID
Dairy Products, Inc.

For the Finest in

MILK

CREAM

AND CHEESE

220-26 Manton Street
Philadelphia 47, Pa.

Gleaner

NATIONAL AGRICULTURAL COLLEGE

Farm School, Bucks County, Pennsylvania

Vol. XLIX JANUARY, 1955 No. 1

In this Issue

Page

REGULAR FEATURES:

Editorial Comments 4
Sports 5
Sportslites by Stammel 6
Man of the Month 9
Hijacked Humor 14

AGRICULTURAL FEATURES:

Science Works for the Farm 8
Are You Poisoning Your Livestock? 10
Intramuscular Vaccination 13

SPECIAL FEATURES:

A Look Into Cancer Research 7
An Interview With James Michener 12
On The Waterfront 15
Stripped Inhibitions 17
Burning The Midnight Oil 18

Staff

EDITOR-IN-CHIEF—Marvin Adleman

ASSOCIATE EDITORS

Ronald Bronsweig
Paul Lepard
Ronald Stammel
Gil Finkel

Sports Editor—Walter Kendzierski
Associate—William Bomberger

BUSINESS STAFF

Manager—Arthur Weinstein
Advertising—John Toscano
Bob Fenning
Circulation—Don Johnson
Jack Mumma

TYPING

Frank Weidemann
Fred Weissman
Charles Klein

CONTRIBUTING STAFF

Raymond Fisher
Sherman Freed
Fred Haentze
Kurt Sonneborn
Jay Weigman
Karl Barth
Richard Block
Pinya Cohen
David Ezickson
Howard Gordon
Tom Hofmann
Gene Sanders
John Lesko
Mark Rabinowitz
Dick Papp
Leonard Siegel
Pete Stollery
George Trawbridge
Lew Siedenberg

Photography by Marvin Adleman

FACULTY ADVISORS

Mr. R. D. Forbes
Mr. Daniel Miller
Mr. Donald Meyer

The Gleaner is published throughout the school year by the student body of the National Agricultural College. Entered as second class matter at the Post Office at Farm School, Pa. Subscription rate—$1.00 per year.

. . . . *Editorial Comments* . . . .

MAN'S RIGHT TO KNOWLEDGE

NOT LONG ago, the President of our College, James Work, spoke frankly before an assembly on the school's policy concerning the controversial subject of "book burning," agreeing wholeheartedly that this practice should not be allowed here at N.A.C. More and more colleges and universities throughout the nation are taking similar views on the subject. Columbia University, for example, celebrating its 200th anniversary this year, has adopted the theme "Man's Right to Knowledge and the Free Use Thereof."

The problem concerns our colleges and universities more so than any other group because much of the science and scholarship upon which progress rests has been the contribution of institutions of higher learning. It has been made not only through work done on the campus, but through that of men and women who got their training in our colleges and universities. The important result has been power — power in the physical sense, power of the mind, power of the spirit. In all these areas, achievement has been possible by the search for knowledge and by the free, responsible use of knowledge. We see the evidences of it all around us in our everyday life. All the technological advances which have made possible the homes we live in, the jobs we hold, most of our recreations, are the fruit of knowledge. The liberty we enjoy was won and is maintained by the thinking of free men.

Summarizing his views on the subject, President Eisenhower stated in a recent address: "Don't join the book burners. Don't think you are going to conceal faults by concealing evidence that they ever existed. Don't be afraid to go in your library and read every book as long as any document does not affect our own ideas of decency. That should be the only censorship."

"How will we defeat communism unless we know what it is? What it teaches—why does it have such an appeal for men? Why are so many people swearing allegiance to it? It's almost a religion, albeit one of the nether regions."

"Now we have got to fight it with something better. Not try to conceal the thinking of our own people. They are part of America and even if they think ideas that are contrary to ours they have a right to have them, a right to record them and a right to have them in places where they are accessible to others. It is unquestioned or it is not America . . . ."

THE CHALLENGE TO AGRICULTURE

U. N. experts recently stated that the world's population might hit almost 4,000,000,000 in the next 30 years—and might lower living standards.

The U. N. Department of Social Affairs made the guess in a statement issued with publication of a 416 page book, "The Determinants and Consequents of Population Trends."

"The world's population, now about 2,500,000,000," the statement said, "is increasing through the excess of births over deaths by about 30,000,000 annually. If present tendencies continue, the rate of growth may rise higher in the future, and within the next 30 years the population may approach the 4,000,000,000 mark."

The book concluded that "the danger of world population reaching the maximum that could be supported by the earth's resources seems remote." It explained: "All except the most pessimistic estimates of the amounts of land and other sources of food which could be brought into use, and of the possible increases in agricultural yields, imply that it would be technically possible to feed a very much larger population than the world now holds.

Studies of the sources of energy and essential raw materials likewise imply that, with prudence in the use and conservation of these resources and ingenuity in devising substitutes for those in shortest supply, they could be made to meet the needs of a growing population for a long time to come."

But, it went on, because of "ignorance, greed, strife, superstition and blind tradition," the production increases that are likely "are much smaller than those which are technically possible."

"It is, therefore, easily possible," the book concluded, "that the means of producing the necessities of life will not be increased as rapidly as population grows, and that the level of living of the world's peoples will be depressed as their numbers increase."

Subscribe Now To—

THE GLEANER

ONE YEAR'S SUBSCRIPTION .... ONLY $1.00

Name ....

Address ....

THE GLEANER .... NATIONAL AGRICULTURAL COLLEGE

FARM SCHOOL P. O., PA.

Quarterback Skip Thompson takes to the air against Susquehanna, heaving a twenty yard pass to Ray Bonowski who caught it in the end zone for the second Aggie TD of the game.

AGGIES CLIMAX VICTORIOUS GRID SEASON

CLOSE YEAR WITH 5-2-1 RECORD

By W. Kendzierski and W. Bomberger '57

IN THE SEASON'S opener the Aggies had a rough time getting started. Thompson to Holzapfel, a passing combination that may go down in N.A.C. history, clicked to give the Aggies a single tally, tieing Kutztown S.T.C. 7-7. "Old Reliable" Wayne Hoffner booted the tieing point.

The game was marred by a series of penalties and an exchange of punts, but Kutztown broke the ice in the second quarter when Castilluci crashed over from the ten yard line to put them out in front 7-0. Early in the third period, on a series of runs headed by "Skip" Thompson's 45 yard sprint, the Aggies moved into scoring position. On the next play "Skip" tossed a perfect pass into the waiting arms of Jack Holzapfel.

Determined to win, the Aggies set out against Montclair S.T.C. taking the game only by a close 19-18 margin. The Green and Gold's forward wall came through to score the three touchdowns. The first of which came in the opening period after freshman Bernie Bunn stole the ball and raced 75 yards into the end zone. Incidentally, this proved to be the longest run of the season. Hoffner converted to make the score 7-0. In the second period both Jay Weigman and Wayne Hoffner recovered loose pigskins in the end zone for touchdowns. Montclair scored three times in the second half but failed to convert, giving N.A.C. the one point margin for its first victory.

Accounting for 27 of the 34 points scored, "Skip" Thompson ran Brooklyn ragged. All of the Aggie scoring came in the second and third periods. The initial T.D. was the result of a 35 yard pass from Thompson to halfback Jack Holzapfel. From there on in, "Skip" personally accounted for all the points, scoring from the eight, six, fifteen, and twenty-four yard lines. Brooklyn advanced only as far as the Aggies' 23 in their only threat of the day. At the final whistle, with the Aggies on Brooklyn's ten yard line, the score stood 34 to 0.

In the first game away from home the Aggies romped over Susquehanna 15 to 0 for their second straight shut out and third straight victory. Spearheaded by a Thompson to Widdoos pass covering 51 yards, the Green and Gold drove seventy yards, scoring their first tally with Thompson going over from the six. Hoffner converted making the score 7-0. Moving to the Susquehanna 20 yard line in the last period, "Skip" Thompson threw a pass to Ray Bonowski, Junior end, who caught the ball in the end-zone for the second Aggie touchdown. An automatic safety was recorded when a wild pass from center went high over a punter's head, making the score 15-0.

With spirits high on homecoming day, the Aggies met Millersville S.T.C. only to receive a jolting 19 to 14 upset for their first loss of the season. The first score came when Sophomore halfback Tom McMinn went off tackle and broke through the Millersville secondary for a 73 yard jaunt. "Skip" Thompson scored the second N.A.C. tally when he raced ten yards into the end-zone. "Old Reliable" Wayne Hoffner booted both the extra points, making his total six straight.

With less than four minutes remaining in the game and the Aggies leading 14-12, Millersville quarterback Bill Amsler took Scott's punt and raced over for the upsetting counter.

Traveling to Long Island, the Aggies came back on victory road, defeating Long Island Aggies by a close 6-0 score. Playing his first game of the season, fullback Sid Blair raced 26 yards for the only tally. It was the Aggies' fourth victory in six games and the loss snapped a two-game winning streak of Long Island.

This time at Washington, D. C. Gallaudet fell under the Aggies powerhousing victory march, losing 13-0. The initial tally was set up on a pass play covering 50 yards with "Skip" Thompson tossing to senior end Harry Conover. The drive was climaxed when "Skip," in his fine passing form, threw a perfect strike to Jack Holzapfel for the score. Wayne Hoffner booted the extra point. The second "Aggie" T.D. was the result of a 60 yard run by fleetback "Skip" Thompson, making the score 13-0. (As a matter of record N.A.C. was not scored upon in any away games.)

Meeting the strongest team of the season, New Britain Teachers College of Conn., the Aggies dropped their last game by a 26-6 score. Scoring the Aggies' lone touchdown, halfback Tom McMinn grabbed a pass from Bill Long and traveled thirty yards into the end-zone. Tackle Wayne Hoffner's kick was blocked. The play was setup after a 30 yard interception runback by Bernie Bunn.

The Aggies completed a victorious '54 season with a total of five wins, two losses and one tie.

SPORTSLITES

BY STAMMEL

WELL, FANS, with the coming of another scholastic year at N.A.C., sports made their way onto the campus in the form of Football. On August 30th, an energetic group of twenty freshmen and ten upper-classmen started "gridiron" practice. On the same date, Camden Catholic High School began working on the other side of the campus. Coach Keyes insisted they were in better shape than our team, but was his face red when a couple of Camden backs ran by him and collapsed.—Football prospects for the future were greatly enhanced this summer. Number 1 candidate for the fullback slot on the 1974 team will be Mike Guisti, that is, if his mother doesn't make him a ballet dancer.—In the Camden Catholic scrimmage, Larry Widdoos was in the clear and away for a touchdown until his pants fell down and tackled him.—Seems as though Joe Overdevest acquired the nickname of "Ice Cream." How come, Joe?—One of Camden Catholic's ends was going to take it easy on Bill Miller because he "had a wife and two kids," but didn't get the chance, as they carried him off the field after Miller had blocked him on the next play.—The cry after the Kutztown game was: "Fenyves, pull up your pants."—The band and cheerleaders are really doing a great job. The added spirit is helping the team to make a fine showing. —The Montclair game turned out to be a great day for the linemen. Every time they got their hands on the pigskin they had goalposts in their eyes. Bernie Bunn added insult to injury by outrunning their whole backfield. —Wayne Hoffner must have a fan on the Inquirer staff who marked up two TD's for him.—When the Brooklyn coach announced over the radio at half time that his team was going to score sixty-one points the second half, he forgot one thing: to tell our team to stay in the shower room!—Have you seen N.A.C.'s version of the "Bobbsey Twins," Rig and Flex?—We wonder why Coaches Keyes and Guisti had an armed guard at Susquehanna to keep Coach Stagy out of our dressing room? —Susquehanna spent so much time looking for No. 33, that they forgot about Thompson, McMinn, Scott, Widdoos, and Co. You should have warned them, Jack.—Walt West joined the "toothless club" up at Susquehanna.—It seems that Jeff and Jerry have such a foot race to the huddle every game that they spill all the water. Take it easy, boys, Bernie can't catch up.—We're glad to see Bill "Frog Man" Long back in action. — Skip Thompson is in the thick of the race for scoring honors in the Philadelphia district. Hope you make it, Skip.—Have you noticed the backfield when Long, Scott, McMinn, and Carstens are in there? Are those masks to you guys, or the other team?—Word has it that Tony Oscapinski is going to transfer to Notre Dame to play ball. With a name like that, how can he miss?—Coach Guisti is still trying to collect those drop-kicking bets from Bill McCall.—Now to leave the gridiron and head for the gym. We see "George Mikan" Indek is putting the boys through their paces getting ready for basketball. By the looks of things, it should be a good year.—Time to close the locker room for now, but I'll see you next issue, and remember: "If you can't play a sport, be one."

'54-'55 BASKETBALL SCHEDULE

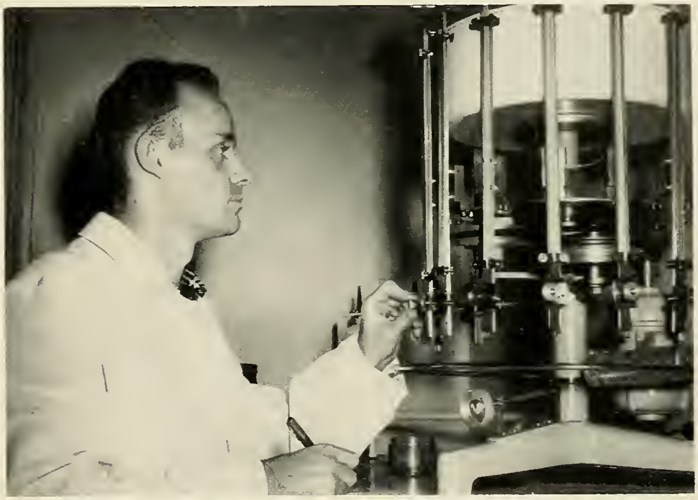
Dec. 1	Ursinus College	Away
Dec. 7	Jersey City S.T.C.	Away
Dec. 9	New Brunswick Seminary	Home
Dec. 13	Temple Pharmacy	Away
Dec. 16	Bloomfield College	Home
Jan. 18	Kings College	Away
Jan. 21	Jersey City S.T.C.	Home
Jan. 28	Susquehanna U.	Home
Feb. 2	Cheyney S.T.C.	Away
Feb. 4	Newark S.T.C.	Home
Feb. 8	Cheyney S.T.C.	Away
Feb. 10	New Brunswick Seminary	Home
Feb. 15	Bloomfield College	Away
Feb. 17	Kings College	Home
Feb. 23	Temple Pharmacy	Home
Feb. 25	Newark S.T.C.	Away

A Look Into

CANCER RESEARCH

A Report on Work Now In Progress At The N. A. C. Research Laboratories

By Karl Barth '56 and Dick Papp '58



Gil Trelawny records the amount of basal metabolism in micro-organisms under study in the Laboratory by means of a Warburg Manometer.

ALTHOUGH CANCER has been known for thousands of years, its threat to our civilization has been only slightly reduced. For many years scientists have been trying to find causes and cures for this dreadful disease, mostly without definite results. Hippocrates studied cancer, and described its terrible effects almost 2500 years ago, thinking "black gall" the cause. The frequent occurence of cancer in persons of certain professions had been observed quite some time ago. Systematic studies in this field and some understanding of the causes are the outcome of recent investigations.

Using the term in its broadest sense, we may define cancer as it is understood today, as a condition resultant of physiological abnormalities. One such cancer, breast cancer, is believed to be caused by an infinitely small virus, or groups of viri, indefinitive by themselves, but when accompanied by a local irritation, behave as a preconditioner of cancer.

An intensive study of the condition of cancer was made by Virchow in the middle of the seventeenth century, when his accurate descriptions of cellular pathology and malignant tumors were announced. This was indeed an accomplishment, since at that period staining technique had not become a well-defined branch of cytology. The three main divisions of cancer cells are classified according to three different types of growths:

1) carcenomata growths, which build up on the epithelium tissue;

2) sarcomata growths, which build up on the connecting tissue: and

3) endotheliomata growths, that have several undetermined characters, but cause growths in the lymph spaces and blood channels.

Occurence of cancer throughout the world is well known. Intensive research has shown that cancer can be produced in experimental animals (mice) by transplanting the malignant tissue or tumor from cancerous patients to the animals. In most diseases, doctors and scientists have been able to isolate the causative agent. Some of these diseases have been counteracted by vaccine, serum, and antibiotic therapy. With cancer, however, efforts of this type have met with little success.

Due to the ever-increasing population of the world, it is impossible to say whether cancer is on the decline or not. It is the opinion of most authorities that there is evidence of a gradual increase in the incidence of cancer.

In all the research work carried out in regard to resistance and susceptibility to cancer, many conflicting reports have been brought up. Some thought that the fluids of the body hold the key to resistance, while others believed that the lymphocytes reduce the tendency of susceptibility.

This problem has been attacked from a different angle since the early 1900's. Extensive investigation has revealed that there are nearly 3000 well-known organic chemical substances like methyl colanthrine, colchicine, and other related compounds which have been shown to cause varieties of cancer in laboratory animals. Recently, a research group in California discovered that fumes from chemical factories and automobiles are one of the causes of lung cancer in humans. To this statement, one may add with some reluctance that cigarette smoking also causes lung cancer. These substances which cause cancer in experimental animals are generally known as causenogenic substances. One of these substances is urethan (ethyl carbamate). It is an ester of ethyl alcohol and carbonic acid, and is used as a narcotic, leukemia agent, hypnotic, enzyme poison, and as a

(continued on page 17)

Science Works For The Farm

Notes and News of Interest in Agriculture

By Ronald Bronsweig

AUTHORITIES PREDICT that there will be at least a 16 million increase in population within the United States by the year 1960. This is a real challenge for the American farmer.

Agricultural science stands ready to help meet this challenge through research aimed at higher yields of feedstuffs per acre; more animal products from cattle, hogs, and poultry; better breeding and feeding; better methods of disease prevention and control and better processing and marketing methods.

This column will try to bring out recent discoveries in the field of agriculture so that people will better appreciate the role which science plays in their homes, on their farms, and in their food plants.

Science Advances in:

Dairy-Ketosis Control

When ketosis (acetonemia) strikes, the cow's appetite fails, and thus milk production drops, and is seldom recovered during the lactation period; naturally, there is a loss of weight.

Science has discovered that adrenocorticotropic hormone (ACTH), cortisone, or compound F, (synthetic adrenal hormones) are much more effective than the older dextrose treatment—one injection being sufficient.

This discovery may mean dollars and cents to you if ketosis occurs in your herd.

* * * *

Agronomy-Crop Residues

When large amounts of straw or other organic matter are turned under, yields are sometimes lower for the crop that is next to be planted. The same might apply to corn and sorghum stalks when it is turned under.

Rodney H. Tucker, an extension service agronomist, says the right answer lies in correcting the conditions which cause lower yields by applying nitrogen—about 20 pounds of actual nitrogen for each ton of residue turned over.

Poultry-Egg Storage

A process permitting almost indefinite storage of eggs is reported to have been patented by a South African engineer.

The eggs are placed in a vacuum chamber, then sealed by aluminum. This method is a variation of the principle used for depositing hard wearing materials, metals on soft metal surfaces.

* * * *

Water Hardness

It is fairly easy to spot hard water around the home. Your glassware and utensils are all clouded and might serve as an environment for bacteria, and may result in spreading a disease within the family. Your clothing becomes rough to the touch. Your skin may become irritated, and every time you wash your hair it ends up feeling like binder twine.

In the kitchen, your tea, coffee, and vegetables may lose their original taste, and peas and beans become wrinkled and tough when cooked in hard water.

Scale will collect in pipes, in the boiler, and in hot water radiators. This development of scale leads to expense and trouble.

On the farm, a dairy man will have high bacteria counts due to either soap or milk combining with the calcium and magnesium salts in hard water, and forming milkstone.

Commercial fruit growers find it hard to remove spray residue with hard water to the minimum permitted by the U.S.D.A. without destroying the natural bloom and lustre of the fruit.

These trouble-making minerals, calcium and magnesium, are expressed by the chemist as grains of salts per gallon of water or by parts per million. When water is over 3 to 4 grains in hardness, it should be softened. When it is over 10 grains, a water softener is a necessity.

Soap wastage and scum can be cut down by adding preparations such as borax, washing soda, or detergents. On large volumes of water, a water softener is used. This unit is made up of two tanks. One tank of the unit contains a mineral called an ion exchanger, which has the ability to "swap" ions with other minerals.

In the softeners, the ion exchangers trade ions of sodium for the calcium and magnesium ions in the hard water. The water enters the softener containing calcium and magnesium carbonates, and lines containing sodium bicarbonate, which is harmless.

The contents of these units must be replaced, as the trade ions lose effectiveness in time.

The development of water softeners has certainly saved people in agriculture many thousands of dollars, and a load of headaches.

* * * *

Atomic Meat Packing

One of the most likely uses for the radioactive fission products from nuclear reactors is in sterilizing food. Irradiating pork with gamma rays, for example, eliminates any danger of its transmitting trichinosis. A group of researchers at the University of Michigan has now calculated that this treatment should add only about two tenths of a cent per pound to the meat.

The estimate is based on a hypothetical irradiating plant which could process 2,000 hogs per day. The radiation source would be a six-by-five-foot wafer of cesium 137 with a radioactive strength of 1.5 million curies. Hog carcasses would be conveyed past this plaque at about six feet per minute. This exposure would be more than enough to sterilize all trichina throughout the carcass.

The initial investment in the irradiating plant is put at $566,000, of which $483,000 would be the cost of the cesium source. It would cost about $125,000 every five years to restore the full activity of the cesium.

MAN OF THE MONTH

B. W. FRAZER

By Paul Lepard '57

ONE OF THE newest members of the faculty here at N.A.C. is B. W. Fraser. Since this is only his second semester with us, we would like to welcome him to our campus. With his ability as a professor, the students of his classes are learning from the best.

Mr. Fraser's home town is Donora, a small, industrial mining town in western Pennsylvania. Being a small town, Donora is usually remembered for two things; the characteristic smog of a mining town, and the production of a great baseball player, Stan Musial.

In high school, Mr. Fraser developed an interest in technical subjects, and, in 1928, he entered Pennsylvania State College. His two main reasons for going to Penn State were his interest in chemistry, and the fact that his brother graduated from there as an electrochemical engineer. He received his Bachelor of Science Degree in '32, majoring in agricultural and biological chemistry, with a minor in bacteriology.

In 1931, Professor Fraser had an acquaintance with a graduate student who was doing some preliminary work with a penicillium culture. After reporting his work to his advisors, he was told to discontinue this research since it would not sanitize milk pails, which was their main interest. The fact that the principle of antibiosis was not found at this time can only be attributed to the "lethargy of the times, or to the lack of imagination of his superiors." In the 1940s, when the first crude penicillin was being tested with such amazing results, you can imagine the thoughts of this student. This "illustrates the experience of mankind and his progress—things often taken for granted, or not given proper importance at one time, are later found to be the keys to a very strong lock."

Mr. Fraser's occupational history began in 1932, when he started working as an ice cream technologist and later as a chemist for a distillery. From 1934 to '39, he was employed by the H. J. Heinz Company, in Pittsburgh.

There he examined the ingredients of their products bacteriologically, determining the cause of spoilage. Being interested in microscopy, he examined white, rubbery particles that had collected on a filter screen and were thought to be foreign matter getting into the soup. After examination, these particles were shown to be coagulated milk albumin that had collected on the screen.

After a brief stab at operating a small dairy lab for about a year, Mr. Fraser enlisted in the Army and was sent to the Army Medical Center at Washington. Here, he worked in the bacteriology lab. Later, when an accelerated course in medical technology was given, Prof. Fraser was in charge of the administration of the courses, and taught bacteriology along with other subjects. He continued his interest in microscopy, and took color photomicrographs as instructional aids. In 1943, he applied for and received a commission, and was sent to the Carolinas for indoctrination.

It was here that he performed experiments and did research on gonorrhea.

He was sent overseas with the 35th General Hospital as their clinical chemist. While stationed in New Guinea and the Philippines Mr. Fraser accomplished two important things. First, he found that the making of sections of kidney stones and their resultant classification was unknown to the urologist and pathologist, and second, he met the woman he asked to be his wife. The second was by far the most important. They were married after the usual run around by the Army of getting permission, having the permit lost in someone's desk, etc. His wife was stationed near Manila with the Red Cross.

Since the war, Mr. Fraser has worked as a research bacteriologist and as a technical representative of a sausage casing manufacturer. While employed in this position, Mr. Fraser found out that even the Meat Institute didn't know the density of meats, so with the data he had found working on casing problems, he published an article on "Sausage Meat Densities" for the July issue (1954) of Food Technology.

(continued on page 16)

ARE YOU POISONING YOUR LIVESTO

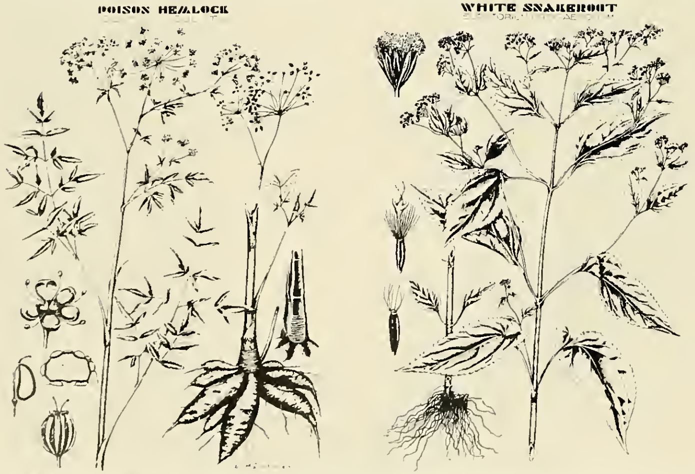
Common Plants on The Farn Great Damage to Man

By Tom Hofmann '56

MANY FARMERS do not realize how many common plants can be poisonous to livestock as well as themselves. Although no true figures are available, the animal loss to farmers caused by livestock poisoning is, no doubt, enormous. In addition, poisonous plants take their toll of human lives each year as well. It is not uncommon for people to mistake mountain laurel for wintergreen, waterhemlock for parsnips, or moonseeds for wild grapes, with fatal results.

The greatest percentage of poisoning, however, occurs in farm animals which may be eating at this moment, such deadly plants as water hemlock, white snakeroot, or one of the numerous toxic plants native to Bucks County. In addition, common forage crops under certain conditions may also prove lethal. Sudan grass, for example, is quite poisonous when frosted, wilted or stunted in growth. A dairyman not too long ago killed a sizeable portion of his herd by cutting this grass and throwing it onto the pasture for the cattle. The heat of the sun and trampling by the animals brought about the development of prussic acid within the plants which quickly killed all that ate it.

Prussic acid, technically known as hydrocyanic acid, is a deadly poison which, in Bucks County, can be found in such wild plants as black cherry, chokecherry, velvet grass and arrow grass. Among the cultivated plants it can be found in Sudan grass, sorghum and flax. It should not be conceived, however, that these last three plants are normally poisonous. Prussic acid is not found to any harmful extent in normal, healthy growth, but develops only when normal growth of the plant is interrupted by frost, drought, trampling or wilting. Farmers should be extremely careful in feeding forage plants which are known to develop prussic acid or in grazing animals on pastures where any of the wild plants are growing.



Poison hemlock and white snakeroot, two poisonous plants which may be on your land.

In most instances of this poisoning the acid is produced before consumption, however, it often develops within the stomach after eating the plant. Although no animal should be allowed to eat a suspected plant, an acid preventative is the prefeeding of alfalfa hay, linseed cake, corn, milo or other starchy feeds.

The symptoms of prussic acid poisoning are complex. There is first a brief period of stimulation followed by depression and paralysis. Symptoms of colic appear. Stupor, difficult breathing and frequent convulsions result from the action of the poison on the brain centers that control respiration. Death is caused by respiratory paralysis, the heart continuing to beat for some time after breathing has stopped. The acid acts very quickly, frequently killing the animal within a few minutes.

Although there are over 70 possible

CK?

Cause
nd Animal Alike

sources of poisoning by plants in this area, only a relative few are considered to be serious. In adition to the aforementioned cyantogenetic plants, others with which we are concerned are water hemlock, mountain laurel and white snakeroot.

By far the largest number of poisoning cases on record are by the water hemlock which is found commonly in meadows, particularly in swampy places and along streams. The clustered roots are thick and fleshy and not very deep in the soil, hence they often become exposed and are picked up and eaten by mistake for parsnips, artichokes, sweet anise or some other edible root. One of the best distinguishing features of the plant is the swollen part of the stem, commonly called the rootstock. This is the portion just above the point where the clustered roots originate. If this rootstock is split open one will see partitions running crosswise which divide the rootstock into chambers. The stem of the plant which may grow to the height of eight feet is hollow except at the joint where the leaves are attached.

Water hemlock causes most trouble in the young stage when it is full of sap and growing rapidly. At this stage it is eaten more freely than later in the season when the stem becomes hard and somewhat woody.

All parts of water hemlock are extremely poisonous. A piece of the root the size of a pea will kill an adult human being. Cattle have been poisoned by drinking water which stands in little pools where they have trampled about and crushed some of the roots. All farm livestock are susceptible to the poison, but it is more likely to be fatal with ruminants such as cattle that cannot empty the stomach by vomiting. The symptoms of poisoning by water hemlock are: salivation, vomiting (in swine), nausea, colic (in horse), bloating (in cattle), diarrhea, irregular pulse and heart, dilation of pupils, rolling of eyeballs, vertigo, reeling in circles, twisting of neck, falling down, automatic movement of limbs, opening and shutting of mouth, and death, usually with convulsions, in from half an hour to an hour.

The mountain laurel, familiar to everyone as our state flower and a commonly used landscape shrub, can also prove fatal. Cattle, sheep, goats, horses and sometimes people die of eating the leaves of this shrub. The laurel is so poisonous that the meat of poisoned animals is deadly. Even the honey derived from the nectar of its flower cannot be eaten safely.

Cattle poisoning occurs most fre-quently in the spring when driven along a path or road where laurel may be growing. The cattle, after being on dry feed all winter, are eager for green forage and are much more likely to eat laurel as well as other poisonous plants under such conditions.

The symptoms from laurel poisoning are: persistant nausea, frothing at the mouth, grating of teeth, irregular breathing, partial or complete loss of sight and feeling, dizziness, inability to stand, extreme drowsiness, stupor, and death. In adition to most of the above effects there is, in man, severe pain in the head, an increased tendency to perspire, and often a peculiar tingling sensation in the skin throughout the entire body. The effects are usually less severe in man, however, due to the tendency to regurgitate.

Of all poisonous plants, the white snakeroot has played the most significant role in our Nation's history. Now a rather rare disease, milk sickness, indirectly caused by white snakeroot, was quite prevalent among the early settlers of the United States. Epidemics frequently occurred which wiped out as much as one-fourth of the population of an area and in a few cases almost the whole population of certain villages succumbed to the dread disease.

It is reported that milk-sickness was the cause of the death of Lincoln's mother.

In human beings, the symptoms of poisoning are weakness, vomiting, severe stomach pains, smothering feeling, delirium and prostration; in cattle and sheep, inactivity. The animal prefers to lie down and must be forced to walk about. The hind legs become stiff and are dragged when walking. If forced to exert itself the animal trembles violently and often sinks to the ground in a fit of trembling. Between the attacks of visible trembling, fine tremors can be felt in the muscles. As the disease progresses the animal becomes weaker and fails to respond to any stimulation and finally dies in

(continued on page 16)

First in a Series on

FAMOUS PERSONALITIES IN BUCKS COUNTY . . . .

JAMES MICHENER

Two Staff Reporters Interview the World-renowned Author and Playwright Who Has Just Returned From an Extended Tour of Asia

By Pinya Cohen and
David Ezickson '56

TO ATTEND COLLEGE in a county famous for its brilliant artists, authors, playwrights and other notables is certainly a thrill. To be privileged enough to interview one of them is even a greater thrill.

On October 14, a typical day of Indian summer, we set out for Tinicum, Pa. with our spirits high. We passed by some beautiful fall scenes, typical of our famous county. After asking several people for directions, we located the obscure side road that led to his home. The quaint road led us past many inspiring country scenes, certainly appropriate for one seeking solitude and peace of mind. The road led us up a steep incline; the land about us was beautifully landscaped, and suddenly at the crest of the knoll a modern home appeared. Very rustic and simple in its lines, it blended beautifully with the natural setting. The pool, the grounds, everything a harmonious unit of natural beauty.

We left the car and knocked on the door. Mr. Michener met us and put out his hand warmly. Any nervousness we might have had was quickly dispelled. He led us into his parlor which was bright and colorful as the sun streamed in through an entire glass wall. Perhaps the room can best be described as "artistic." We had never experienced anything so striking in tones and effect.

Mr. Michener was casually dressed and spoke with us very directly and informally. He had recently returned from a trip through the countries of Asia, and he discussed his far eastern tour with us at length. During the course of our discussion we covered a variety of subjects.

We asked Mr. Michener about his extensive Asian tour which included Turkey, Pakistan, Thailand, India and other countries. We are all aware of the many religious sects in Asia. He explained to us that Americans tend to overestimate the Asian peoples spiritually. It is true there are many ardent believers in the various religions, however, the people are highly practical in their moral approach. Many groups live by a strict ethical code, such as those living in China. Many followers of Buddhism are "hard boiled double dealing rationalists," Mr. Michener stated, and he also cited believers in Islam whom are "highly fundamental" in their way of life. A fanatical group of mysticists exists within the Islamic culture. The Asian groups honestly feel that they can do better with Russia, and they consider the United States overly materialistic. Mr. Michener impressed us with the fact that the Asians are very proud of their materialistic gains, and in many instances they have gone overboard with this sentiment.

One of the pressing Asian problems is to bring together economically the metropolitan and rural areas. He illustrated this problem by his own experience. In the cities of India he found more modern electrical appliances, such as air conditioning, than in our Western metropolitan areas. The rural areas, however are years behind in this respect. Perhaps we have over idealized American business efficiency and thus we have become overly materialistic in our day to day practices. What is pitiful in many areas is that there is little in the way of water resources and what is even more sorrowful is that there is no money with which to attack so serious a problem. Such is the case in India, which Mr. Michener feels, is in a precarious position. The population, 99% of which is underfed, is a perfect breeding ground for communism.

Of all the Eastern countries, Japan is probably the most practical. Mr. Michener spoke of Japan as "the acme of pragmatism."

Thus we were impressed with several factors in respect to the Asian peoples; 1) That they are a very practical culture. 2) That we as Americans tend to misinterpret their spiritual values and what these values mean to them. He emphasized in this regard, that "every society must have some idol. To some religious groups the cow represents a walking temple." 3) In most Asian countries there is no evidence of voluntary action for the social good of the community.

We eventually drifted away from our discussion of the Asian countries and the problems that confront these peoples. We asked Mr. Michener how and why he became a writer. To our surprise he told us that writing was of a second nature to him, and that he was "never keen to be a writer, but keen to be a well rounded citizen." "Writing," he said, "permits one to do more of what he wants to do."

Mr. Michener was very much interested in our college program. He pointed out that some of America's greatest free thinkers have been men concerned with scientific agriculture, such as Thomas Jefferson.

We found our interview with Mr. Michener highly enlightening. He opened up to us a new world of thought in respect to the Asian peoples and their various cultures. He showed us that by understanding and evaluating ourselves we can better appreciate their wants and needs.

We owe a vote of thanks to Mr. Michener for his encouragement and advice, and for making our morning an enriching and memorable experience.

Newest In Poultry—

Intramuscular Vaccination

By Fred Haentze '55

Vaccination in poultry is relatively new compared with the many years human vaccination has been used. In the past, vaccination has been the only preventative in the fight against disease, but now with the discovery of new drugs, such as Aureomycin, terramycin, and the sulfa drugs, the problem of high mortality under proper management is becoming a thing of the past. Mortality has been the greatest problem the poultryman has had to face. Of the many diseases in poultry, newcastle is probably the most common. The Vineland Laboratories discovered a completely new type of vaccination for Newcastle several years ago known as Intranasal vaccination which is quickly replacing other methods.

There are four ways of vaccinating birds. The first of these is Intra-nasal: The chicks' beak is held shut, a finger is placed over one nostril, and a drop of vaccine is dropped into the other nostril. The bird is released as soon as the drop is inhaled into the nostril. The second type is intra-ocular. (A drop of medicine is placed into the eye of the chick.) These two methods are used when the birds are anywhere from two to several days old; therefore, a very mild vaccine has to be used. The third, and probably the most common, is the wingweb method: The bird is held by the legs with its head down and one wing is extended to expose the under surface of the web of the wing. The needles of the vaccinating instrument are dipped into the mixed vaccine before each bird is vaccinated. The needles are then thrust through the under side of the wing and quickly withdrawn. This needle consists of simply two sewing needles in a handle. The fourth, and newest method, is intramuscular vaccination. There are actually two strains of vaccine that are used for this type of vaccination — Vipol 717 and Vipol 21. The Vipol vaccinator is an automatic syringe which will dispense the exact amount of vaccine. The mixed vaccine is poured into the reservoir for vaccine and is injected into the bird by inserting the needle of the syringe approximately ½″ into the breast muscle. The needle should be injected parallel to the breast bone, and angular into the muscle rather than directly down into it. This application is the simplest and most effective of the three types.

Besides the effectiveness of this vaccine, the next thing that comes to mind is the speed in which the operation can be done. A novice can handle about 400 birds per hour, while an expert can do from 750 to 1000 birds per hour. Skill in this type of vaccination is easily acquired.

The Vineland Poultry Laboratories are offering to the public two distinct types of Intra-muscular vaccine. Each of these vaccines is for a specific purpose. Strain Number one, Vipol 717, is a mild strain of the Newcastle disease virus. This vaccine produces a generalized type of immunity throughout the bird. It is recommended for use on birds 14 days of age and older. Vipol 717 can be used on birds of any age, and it is particularly adapted for producers of meat birds. One application of Vipol 717 vaccine at fourteen days of age will suffice to protect birds through the broiler and roaster age. This vaccine is also ideal for use on very young birds intended as future layers, particularly in those areas where Newcastle disease is a problem during the winter months. Laying bird replacement pullets and future breeding cockrels can be vaccinated at fourteen days of age for protection during the early growing period. However, they must be revaccinated before housing time, using regular intramuscular vaccine (which is not to be confused with Vipol 717 intra-muscular vaccine). It can also be used on birds in production without causing a noticeable drop in egg production as the strain is very mild. The reason this type is so well suited for meat birds is that there is continued growth and feed intake during the vaccine reaction period.

Strain number two, which is identified as Vineland Intra-muscular Vaccine, is a more potent strain of virus. This strain is particularly adapted for use by those poultrymen who desire to vaccinate their laying bird replacement stock only once between the ages of fifteen and twenty weeks. If birds are vaccinated at that age it will not be necessary to vaccinate them again. Sufficient immunity will be developed to carry the birds through the first laying season. It is also used for the purpose of re-vaccinating laying bird replacement stock that has been previously vaccinated at fourteen days of age with Vipol 717 Intra-muscular Vaccine or any other strain or type of similar vaccine. This strain of vaccine should also be used on laying birds during their first full molt, particularly when these birds are to be used as breeders during the second laying year. This vaccine will stimulate the largest amount of antibodies in the birds and, as a result, they will pass on a high degree of parental immunity to their offspring.

The typical reaction in a susceptable flock resulting from the use of Vineland Intra-muscular Vaccine will be as follows: on the fifth or sixth day after vaccination the caretaker will hear sneezing throughout the flock. Between the sixth and tenth days after vaccination there might be a slight loss in birds, which usually runs from one half to one and one half per cent. This loss includes paralyzed birds as well as dead birds. Their feed intake will be reduced about twenty-five per cent, but within three or four days after the birds have been affected, they come back on normal feed.

The first outbreak of Newcastle disease occured in Batavia, Java. The disease has been carried into many countries, among them England, the Philippine Islands, India, Israel, Ceylon, Japan, Korea, and Australia. The disease first occured in the United States in California and was described as a respiratory nervous disorder. The first attack in the Eastern part of the United States was diagnosed by Dr. F. R. Beaudette at the New Jersey College of Agriculture in the winter of 1945. Much research has been done in this disease and diagnoses have now been made in almost every state in the Union.

Losses in baby chicks and poults have reached gigantic proportions

(continued on page 17)

HIJACKED HUMOR

Compiled By "Pop" Fisher '55

Father to small boy dragging top half of bikini bathing suit along beach:

"Now show Daddy *exactly* where you found it . . ."

☆ ☆ ☆ ☆

Instructor: "You missed my class yesterday, didn't you?"

Student: "No sir, not a bit."

☆ ☆ ☆ ☆

We are living in an economical revolution. Women without principle now draw considerable interest.

☆ ☆ ☆ ☆

She: "I caught my boy-friend necking."

Her: "I got mine that way too."

☆ ☆ ☆ ☆

Client, phoning from prison — "They've pulled up my cuffs, shaved my head, ripped my trousers up the side. What should I do?"

Attorney—"Don't sit down."

☆ ☆ ☆ ☆

"I hear you and your husband are not getting along well together."

"Of all the silly rumors. It's true we had an argument and I shot him—but that's as far as it went."

☆ ☆ ☆ ☆

Pa: "It's two o'clock—'bout time Sally's college friend went home."

Ma: "Now, John — remember how we used to court."

Pa: "That settles it. Out he goes!"

☆ ☆ ☆ ☆

A young bride of three months complained to her relatives about her husband's continued drinking habits.

"If you knew he drank, why did you marry him?" she was asked.

"I didn't know he drank," the girl replied, "until one night he came home sober!"

☆ ☆ ☆ ☆

The American tourist walked into an Italian restaurant. "Waiter," he said, "bring me two bottles of this Benozza Vercilli listed on the menu."

"Sorry sir," replied the waiter, "but that's the proprietor."

"This is a pretty bad dog bite," a doctor told the woman, "and you may be carried away by hydrophobia. I dislike to say it, but I'd suggest you quickly note down your last wishes."

Opening her purse for pencil and paper, the woman began to write furiously. After a long time, the doctor remarked, "You must be making quite a will."

"Will, my eye!" retorted the victim, "I'm just writing names of people I'm going to bite."

☆ ☆ ☆ ☆

"In many states a hunting license entitles you to one deer and no more."

"Just like a marriage license."

☆ ☆ ☆ ☆

"How about a kiss?"

"Sir, I have scruples."

"That's alright, I've been vaccinated."

☆ ☆ ☆ ☆

"If the dean doesn't take back what he said this morning, I am going to leave college."

"What did he say?"

"He told me to leave college."

☆ ☆ ☆ ☆

He: "Did anybody tell you how wonderful you are?"

She, smiling: "I guess not."

He: "Then where'd you get the idea?"

☆ ☆ ☆ ☆

"Oh, here's the place mother told me to stay away from. I thought we'd never find it!"

☆ ☆ ☆ ☆

"Waiter," cried the irate lady, "I must say I don't like all the flies in this dining room."

"Tell me which ones you don't like, madam, and I'll chase them out for you."

☆ ☆ ☆ ☆

Virtues are learned at mother's knee: vices at some other joint.

The difference between freshmen and sophomores is that when a professor enters a freshman class and says, "Good morning," they answer him. When he enters a sophomore class and says, "Good morning," they write it down in their notes.

☆ ☆ ☆ ☆

Weary teacher: "How can you possibly do so many stupid things in one day?"

Pupil: "I get up early."

☆ ☆ ☆ ☆

A big fur coat; a new sport car;
A Persian rug, and a built-in bar;
Five years ago, some teaching hick
Flunked that girl in arithmetic!

☆ ☆ ☆ ☆

The farmer was more than a little irritated when he called his boys in and demanded to know who had pushed the privy into the river.

"I did, father," spoke up one lad.

"Come out in the woodshed," the old man ordered. "I'm going to whale the tar out of you."

"George Washington's father did not punish him when he told the truth," pleaded the boy.

"Yes, I know," replied the old man, "but George Washington's father wasn't sitting in the cherry tree!"

☆ ☆ ☆ ☆

If a fellow tries to kiss a girl and gets away with it, he's a man; if he tries and doesn't get away with it, he's a brute; if he doesn't try but would get away with it if he did try, he's a coward; if he doesn't try and would not have gotten away with it if he tried, he's wise.

☆ ☆ ☆ ☆

A Midwestern magistrate was hearing a case which involved a collision where both drivers had been "under the influence" when the mishap occurred.

Said the judge: "I wish to commend you two drinking drivers for running into each other instead of some innocent person. If this sort of thing can be encouraged, I think we may have hit upon the solution of a serious problem."

—Public Safety

ON THE WATERFRONT

By Gil Finkel '57

THE FIRST SIX long weeks of Freshman hazing were over. The frosh, with spirits and heads high, trooped down to Lake Archer. They had challenged the sophs to the traditional tug-o-war.

The tug-o-war was to decide if hazing would continue. Would the Freshmen have to keep their hats and signs, their tooth picks and matches?

The "lake" was little more than a muddy stream. An effort had been made to add more water, but it was futile, only adding mud.

Varsity Club members Miller, Conover, and Stammel were the officials. They had the two teams line up facing each other, across the stream. Miller read the rules of the contest. The teams were getting nervous, the rope tightened and loosened, moving this way a few inches and then back the other way.

Without much more ado, Miller signaled the start of the battle. Forty men dug into the ground, the white handkerchief tied to the middle of the rope didn't move an inch. Thirty seconds more, and the marker was in the same spot. Then slowly it moved. Now an inch, now two more—the sophs were winning, but oh so slowly. In another minute it moved but two feet, the leading freshman was in the water. Again the marker moved slowly, an inch at a time until three frosh were in the stream. The marker remained still, now it moved back. The freshmen regained their confidence, and a foot of ground. Again the marker stopped. Twenty men on each side, pulling with all the strength they had. Coach for the sophs Duane Bair made innumerable trips up and down the hill his team was pulling on, cheering, yelling, advising. The rope moved once again, faster now than before. The freshmen lost their ground and their foothold. The sophs pulled, and pulled, and pulled again. Now six frosh were in water—now eight. They were sliding on the mud. They were losing ground quickly now. Four freshmen slipped and fell; when they got up two more slipped.

The Sophmores were pulling up a hill that got steeper as they climbed it. But they did climb it.

Three minutes and fifty-nine seconds after the start was signalled, the last freshman was pulled through the stream. The sophs won! Hazing was to continue for two more weeks!

And that's not all! The Freshman Class President, Frank Rosade, carried John Toscano, Sophomore President, across the muddy pond on his back. The sophs then had the pleasure of dousing all the frosh with water, as they left the lake. (As if their spirits weren't dampened already.)

Congratulations, Sophs!

With crowds of spectators cheering them on, the sophomores (left) and freshmen engage in the 4th annual Tug-O-War.

W. J. Nyce's Shoe Store

"The Home of Nice Footwear"

X-ray Fittings

West and State Streets

Doylestown, Pa.

Stotz and Thiele

ANTIQUES

Route 202

Buckingham, Pa.

"The Best

at

Its Best"

ED'S

DINER

Franklin and State Streets

DOYLESTOWN

Class of '57
Presents
The Melodiaires at the

SWEETHEART
DANCE
(SEMI-FORMAL)

February 12, 1955
9 p. m. to 1 a. m.

Lasker Hall

•

$2.00 per couple

HUSTLE INN

300 So. Main St.
Doylestown, Pa.

Histand Brothers

Roofing Contractors

DOYLESTOWN 4121

LIFE IN MUMMY WHEAT IS DENIED BY SCIENCE

Records of exceptionally long life in living things, have always attracted much attention. The longevity of seeds is a subject about which have appeared many reports, some authentic, some contradictory, and some completely false.

One of the most common and persistent false reports concerns the germination and growth of mummy wheat from Egypt. No authenticated record of the germination of wheat taken from Egyptian tombs is available. Indeed, a number of observations indicate the complete loss of germinability of such wheat and equally old barley.

Attempts have been made to germinate ancient grains but none has ever been successful. For example, about fifty years ago at the Royal Botanic Gardens in Kew, an experiment was run with some grain from a model granary found in a tomb of the 19th dynasty. Samples were tested under various conditions, but after several months all the grain had disintegrated.

Another experiment with mummy wheat from a sarcophagus of the Grecian epoch in Old Memphis proved completely unsuccessful in spite of precautions taken and the various conditions for germination provided. Examination of the internal structure of such mummy grains has shown the embryo to be dark brown and greatly shriveled, with little of its structure visible.

Several explanations have been offered for the frequent and popular belief in the germination of grains from Egyptian tombs. Recently harvested wheat has been packed into ancient coffins and sent to England. When such grains were tested for germination, of course they gave positive results.

Some Egyptian businessmen have substituted fresh wheat for genuinely ancient grains and have sold such wheat to tourists who upon return to their homes, plant and grow in their gardens "genuine mummy wheat from Egypt."

Actually, cereals seem to be ill-adapted to a long period of seed dormancy, so ill-adapted, in fact, that the germination of 25-year-old wheat has been called exceptional, although in one case wheat stored for 32 years under dry conditions showed 69 per cent germination.

—JOHN W. THIERET
in Chicago Natural History *Bulletin*

B. W. FRAZER

(continued from page 9)

Like most people who do laboratory work, Mr. Fraser obtains satisfaction from the study of nature at work. "Information is never trivial—even if it is only the relative weight of bologna." His biggest thrill was finding the microscopic beauty and complexity of cells. Other observations, such as finding motility in sporulated cells of bacteria, finding some evidence of a sex cycle in a fungus, studying the retardation colors in cellophane films in regard to their points of rupture, etc. have all been rewarding in a sense of satisfaction—if not in importance.

I asked Mr. Fraser if he had any pet peeves. He said he had several, one of which "is the provincial mind that has never accepted the 'brother's keeper' precept or even thought that he had any brothers—these people will keep us in international hot water forever, and cause needless problems at home."

Since Mr. Fraser graduated from one of the country's largest schools, I asked him if he would try to compare the advantages of a small college to a large college. He believes that size can be no criterion. "If the student finds what he wants, and the college gives what he should have, then the small college has numerous advantages, even the convenience of not having to walk a mile to get to class.

"Teaching quality depends on the professor, and often times on physical equipment. With an integrated program, the student at the small college should be able to work with a graduate of any other college."

ARE YOU POISONING YOUR LIVESTOCK

(continued from page 11)

a state of profound depression.

A fact that must be noted is, that a cow may eat white snakeroot in quantity sufficient to poison those who drink the milk while she may not be noticeably affected.

In all cases of poisoning a medical man should be called as soon as possible. Although numerous antidotes are available, most of them only help slightly and must be administered immediately if they are to do any good at all. Prevention in most cases is the only remedy. If it is known that poisonous plants are growing where livestock can get to them, the plants should be gotten rid of without hesitation.

STRIPPED INHIBITIONS

I trust the smile of the weary.
How can they be insincere?
Their emotions then are basic,
They grin at something dear.

The smile of the rich on the poor,
Is something less than friendship.
They are proud and haughly,
And express no kinship.

The smile of the poor on the rich,
Is the expression of only the lust,
To stand in the place of their master,
And look down from above.

The smile of the strong on the weak,
Is something sad to see.
For they know that they can control,
The other's destiny.

The smile of the weak on the strong,
Has in it something wrong.
For it isn't right to feel,
That every drop of joy you have,
Is one thing you must steal.

The smile of the happy on the sad,
Is selfish and not quite real.
For such broad grins encompass,
Only how they themselves feel.

The smile of the sad on the happy,
Has in it too much pain.
Dominated by the hopeless wish,
To be happy once again.

But the smiles of the weary,
Born of deepest ties.
Really express,
What goes on down inside.

CANCER RESEARCH

(continued from page 7)

mutagen (excites cell nuclei and effects mutation). It is believed that urethan stimulates some epithelial cells in the lungs to reproduce at a tremendous rate. These cells have been found to show fermentative ability or an ascidic type metabolism. It is the nature of living things to maintain a balance of acids and bases in the system. When such acids are produced in the system, it is logical to conclude that the acid destroying or utilizing cells should function simultaneously. Therefore, with a little imagination, one could picture the growth, reproduction, and dismutation of cells, giving rise to a precanceritic zone which eventually becomes a tumor; a sporatic growth of the cells without direction or aim, which finally destroys itself by killing the patient.

For experimentation in the cancer research laboratory, animals, like mice and rabbits, have been used. This requires well-trained personnel and expensive equipment. This long and devious road to research has been cut short by the isolation of a soil micro-organism belonging to the group actinomyces (Streptomyces nitrificans) by Dr. Albert Schatz. It is fortunate that this micro-organism has basically the same physiological processes as higher forms of life. Therefore, research costs are decreased considerably when mice, rabbits, etc., are substituted by micro-organisms.

S. nitrificans has the ability to utilize urethan as its sole source of nitrogen and carbon. The National Agricultural College Research Laboratory has been awarded a grant from the United States Public Health Service for a two-year study of the effects of urethan on S. nitrificans. Drs. Schatz and Mohan are collaborating on this problem. It was necessary to purchase a Warburg manometer for the study of basal metabolism, and a spectrophotometer for the study of enzyme mechanisms and the characterization of solutions. The results of the investigations up to date have been very encouraging and scientific papers are in the process of being published in various scientific journals. It is the hope of the investigators to develop a better understanding of cancer from this cellular level.

INTRAMUSCULAR VACCINATION

(continued from page 13)

from this disease and in birds up to four weeks of age, fifty per cent mortality has been common. Many flocks have lost ninety to one hundred per cent. In growing birds, losses have ranged from ten to twenty-five per cent. Laying birds went into complete molts following this disease with the result being an extended loss in egg production beyond that usually suffered during the disease. We have been quite fortunate in the United States in that the disease has remained in a comparitively mild form since it was first diagnosed. It is difficult to diagnose Newcastle disease from the post-mortem symptoms alone. It is necessary to have certain laboratory tests conducted to make certain of an accurate diagnosis.

It can be seen by these facts how serious this disease really is. This is only one of the many serious diseases that the poultryman has to contend with. However, with vaccination and the improvement in the administering of the vaccine, mortality is being lowered, thus cutting down one of the biggest problems in the poultry industry today.

1955
CORNUCOPIA
Yearbook Of The Senior Class
National Agricultural College
Order Now Through Any Member of the Class of '55
or Send to: Box 114
Farm School, P. O., Pa.
NOW ONLY $4.00

BURNING THE MIDNIGHT OIL

By Ed Jardel

Now let's see, it says here that $V = (.04^t - .012C \times C^2)$. According to that, V should equal . . . . . . Wonder where I put those no-doze tablets? Should be here somewhere . . . . . . You know that isn't a bad picture of Pat . . . . . . well what the heck, she isn't a bad looking chick . . . . . . wonder why she really dropped me? . . . . . . Drop, that's it. You drop the $.04^t$ and subtract C^2 from .012C and that gives you??? . . . . . . no, guess that it doesn't. Better go on to something else . . . . . . never get this at the rate I'm going. Probably won't give it in the exam anyhow. Wonder what the devil he will give? All he said when we asked him was, "Das all right" . . . . . . Yah, what he really means is "Das all right, I'll flunk you if you don't get the questions right" . . . . The questions never did bother me, it was always the answers.

Wonder if he'll ask about Floratropia? No, that's too obvious . . . . . . Once knew a guy that had that . . . . . . strange sort of guy . . . . . . all taken up with that floratropia . . . . . . loved flowers . . . . . . used to come home from the office and go to work on his Four Roses . . . . . . strange sort of guy. Where did I put those no doze tablets? To blazes with them, I'll just have a Lucky instead . . . . . . almost out of them too . . . . . . must be almost time to quit for tonight . . . . . .

Now let's see . . . . . . if the rate of population increases in the city by 5% each year, and more people are turning to part-time farming each year, ... what? . . . . . . city population increase by 5% yearly . . . . more people turning to part-time farming yearly . . . . . . No, the prof must have crossed his signals up somewhere along the line . . . . . .

That guy from Newark must have had his signals crossed in the game on Tuesday too . . . . . . maybe it was just his eyes that crossed when he saw Pat . . . . . . Whatever it was, he made about as nice a mess out of that game as the prof did of that farm and city stuff . . . . . . couldn't have been me . . . . . . have an intense interest in that sort of thing . . . . . . was awake almost all period . . . . . .

Yah . . . . . . well . . . . maybe the population is increasing in the cities . . . . . . been seeing a lot of new girls around town lately . . . . . .

Where the devil are those no doze tablets . . . . .? Need another coke . . . . . . that ought to keep me awake for a while . . . . . . Boy, that lumpy old sack looks inviting tonight . . . . . . wonder why? . . . . . . 2 a.m. . . . . . . well, just a little longer . . . . . . must build character . . . . . . not only that, must make marks . . . . . . Can hear dad now . . . . . . "Do you think I send you to school for nothing?" . . . . . No, I know he spends good money . . . . . . but, what the heck, I try . . . . . well I try to try . . . . . . better have another lucky . . . . . . 2:30 a.m. . . . . . wonder where that box of no doze is? . . . . . . Now let's see . . . . . . C^2 . . . . minus .012 - - - - - - must equal 1/5 of . . . . . . Four Roses . . . . . . or Flora population . . . . . . of the city . . . . . . or the yearly population . . . . . of the social game . . . . or the crossed signals . . . . . .

SUNSET

Sunset is a place for me to dwell within myself
And contemplate the day gone by.
And lift my voice in song, or heave a quiet sigh,
Or wish a silent wish, upon the clouds to ride,
Until it reaches in its own galaxy, death or fulfillment.

Sunset is a time to look upon the short past,
And learn from that just what to do in a future which is vast.
And resolve to do it all through the coming day,
Until the sunset comes again to mock me for my weakness,
And promise another day in which to prove myself.

Sunset is a Sabbath, to capture it is hard,
But one long gaze till eyes haze up, and one good meal
By her to sup, Spirits rise in me.
And show what I can be if I will.

GARDY'S
BOOK and STATIONERY STORE
School and Office Supplies
Corner State and Main Streets Phone 5284

COMPLETE PRINTING SERVICE
Plant at 28 W. State Street Phone 4369
DOYLESTOWN, PA.

Farm Equipment Headquarters
McCORMICK-DEERING Farm Machines
INTERNATIONAL Motor Trucks CADILLAC and OLDSMOBILE Cars
Barn and Dairy Equipment, Farm Freezers, Sprayers, Silos, Power Lawn Mowers
DOYLESTOWN AGRICULTURAL CO.
PHONE 9441 Established 1851 DOYLESTOWN, PA.

Doylestown Building Company, Inc.

General Contractors

Telephone 4408 130 South Main Street

Doylestown, Pennsylvania

Corsages — Cut Flowers

SANDY RIDGE
FLOWER SHOP

TELEPHONE 4169

Doylestown, Pa.

PLUMBING HEATING

M. A. RUFE ESTATE
JAMES D. RUFE

DOYLESTOWN, PA.

FUEL OIL

GENERAL ELECTRIC AUTOMATIC OIL HEATING

WEISBARD'S DRUG STORE

Prescription Drug Store
Since 1874

Main and State Streets
DOYLESTOWN, PA.

Barrett

Hardware

Co.

JAMES BARRETT

Doylestown

Pennsylvania

FUEL OIL

GAS – MOTOR OIL

Automatic Delivery

Metered Receipts

Gwinner's Atlantic Service

DAY OR NIGHT

West Street Doylestown 4980

Cross Keys
Hardware

"Shop Smith"
Power Tools

Phone Doylestown 4762

In Doylestown It's

PEARLMAN'S

for

Records - Record Players
Musical Instruments
and Accessories

34 S. Main Street

NYCE'S
SUPPLY
YARDS

New Britain, Pa.
Phone: Doylestown 4480

Feed – Grain
Coal
Fuel Oil
Fertilizer

Custom Grinding
and Mixing

DRAWING
MATERIALS
PHOTOSTATS
BLUE PRINTS

Engineering Equipment
Surveying Instruments

★

J. H. Weil & Co.
1332 Cherry Street
Phila. 7, Pa.

For everything
pertaining to

Real Estate
and Insurance

see

J. Carroll Molloy
REALTOR
DOYLESTOWN 3558

Paul W. Histand Co.

Phone: 5507-4687
Doylestown, Pa.

Oliver
Farm Equipment

G. M. C.
Trucks

SALES AND SERVICE